

**WHAT IS CLAIMED IS:**

1. A process for forming a smooth surface on a molded article of  
5 polytetrafluoroethylene or modified polytetrafluoroethylene by coating said article  
with a heat-flowable fluoropolymer powder resin and heating the coated article to  
form a fused fluoropolymer resin coating, wherein the surface of the coated article has  
a reduced roughness compared to the molded article prior to coating.
2. The process of claim 1 wherein said heat-flowable fluoropolymer resin  
10 comprises a tetrafluoroethylene copolymer.
3. The process of claim 1 wherein said fluoropolymer resin coating comprises  
a copolymer of tetrafluoroethylene and perfluoro(alkyl vinyl ether) (PFA).
4. The process of claim 1 wherein said fluoropolymer resin coating comprises  
a copolymer of tetrafluoroethylene and hexafluoropropylene (FEP).
- 15 6. The process of claim 1 wherein said fluoropolymer resin coating comprises  
a mixture of heat-flowable tetrafluoroethylene copolymer and a  
polytetrafluoroethylene that has a temperature of crystallization of at least 305°C and  
a heat of crystallization of at least 50J/g.
7. The process of claim 1 wherein said coating is formed by electrostatically  
20 applying said fluoropolymer powder resin to said molded PTFE article.
8. The process of claim 1 wherein the surface of the coated article has a  
roughness that is reduced by at least 25% as compared to the molded article prior to  
coating.
9. The process of claim 1 wherein the surface of the coated article has a  
25 roughness that is reduced by at least 50% as compared to the molded article prior to  
coating.
10. The process of claim 1 wherein the surface of the coated article has a  
roughness that is reduced by at least 75% compared to the molded article prior to  
coating.
- 30 11. The process of claim 1 wherein the coated surface has a center line  
average roughness ( $R_a$ ) of less than 1.5 micrometers.
12. The process of claim 1 wherein the coated surface has a center line  
average roughness ( $R_a$ ) of less than 1.0 micrometer.
13. The process of claim 1 wherein the coated surface has a center line  
35 average roughness ( $R_a$ ) of less than 0.5 micrometer.

14. The process of claim 1 wherein the thickness of the fused fluoropolymer resin coating is 100 $\mu$ m or less.